

(c) Interbarrier spaces must have an eductor or pump for removing liquid cargo and returning it to the cargo tanks or to an emergency jettisoning system meeting § 154.356.

(d) Spaces in the cargo containment portion of the vessel, except ballast spaces and gas-safe spaces, must not connect to pumps in the main machinery space.

[CGD 74-289, 44 FR 26009, May 3, 1979, as amended by CGD 82-063b, 48 FR 4782, Feb. 3, 1983]

§ 154.355 Bow and stern loading piping.

(a) Bow and stern loading piping must:

- (1) Meet § 154.310;
 - (2) Be installed in an area away from the accommodation, service, or control space on type IG hulls;
 - (3) Be clearly marked;
 - (4) Be segregated from the cargo piping by a removable spool piece in the cargo area or by at least two shut-off valves in the cargo area that have means of locking to meet § 154.1870(a);
 - (5) Have a means for checking for cargo vapor between the two valves under paragraph (a)(4) of this section;
 - (6) Have fixed inert gas purging lines; and
 - (7) Have fixed vent lines for purging with inert gas to meet § 154.1870(b).
- (b) Entrances, forced or natural ventilation intakes, exhausts, and other openings to accommodation, service, or control spaces that face the bow or stern loading area must meet § 154.330.

§ 154.356 Cargo emergency jettisoning piping.

Emergency jettisoning piping must:

- (a) Meet § 154.355(a);
- (b) Be designed to allow cargo discharge without the outer hull steel temperature falling below the minimum temperatures under §§ 154.170 and 154.172; and
- (c) Be specially approved by the Commandant (G-MSO).

[CGD 74-289, 44 FR 26009, May 3, 1979, as amended by CGD 82-063b, 48 FR 4782, Feb. 3, 1983]

CARGO CONTAINMENT SYSTEMS

§ 154.401 Definitions.

As used in §§ 154.440 and 154.447:

“**σ_Y**” means the minimum yield strength of the tank material, including weld metal, at room temperature.

“**σ_B**” means minimum tensile strength of the tank material, including weld metals, at room temperature.

§ 154.405 Design vapor pressure (P_o) of a cargo tank.

(a) The design vapor pressure (P_o) of a cargo tank must be equal to or greater than the MARVS.

(b) The P_o of a cargo tank must be equal to or greater than the vapor pressure of the cargo at 45 °C (113 °F) if:

- (1) The cargo tank has no temperature control for the cargo; and
- (2) The vapor pressure of the cargo results solely from ambient temperature.

(c) The P_o of a cargo tank may be exceeded under harbor conditions if specially approved by the Commandant (G-MSO).

[CGD 74-289, 44 FR 26009, May 3, 1979, as amended by CGD 82-063b, 48 FR 4782, Feb. 3, 1983]

§ 154.406 Design loads for cargo tanks and fixtures: General.

(a) Calculations must show that a cargo tank and its fixtures are designed for the following loads:

- (1) Internal pressure head.
- (2) External pressure load.
- (3) Dynamic loads resulting from the motion of the vessel.
- (4) Transient or stationary thermal loads if the design temperature is colder than –55 °C (–67 °F) or causes thermal stresses in cargo tank supports.
- (5) Sloshing loads, if the cargo tank is designed for partial loads.
- (6) Loads resulting from vessel’s deflection.
- (7) Tank weight, cargo weight, and corresponding support reaction.
- (8) Insulation weight.
- (9) Loads of a pipe tower and any other attachments to the cargo tank.
- (10) Vapor pressure loads in harbor conditions allowed under § 154.405.
- (11) Gas pressurization if the cargo tank is designed for gas pressurization as a means of cargo transfer.